

Input file Fbh62112FL.seq; Output File 62112.trans
Sequence length 2452

CGTGTGTGTGTCCTGCGGCGCTAAGAAGGGGAGACTGAGGCTGAGGCTGGGGAACATCGGGCAGC M S G 3
ATG AGC GGC 9

C G L F L R T T A A A R A C R G L V V S 23
TGC GGG CTC TTC CTG CGC ACC ACG GCT GCG GCT CGT GCC TGC CGG GGT CTG GTG GTC TCT 69

T A N R R L L R T S P P V R A F A K E L 43
ACC GCG AAC CGG CGG CTA CTG CGC ACC AGC CCG CCT GTA CGA GCT TTC GCC AAA GAG CTT 129

F L G K I K K K E V F P F P E V S Q D E 63
TTC CTA GGC AAA ATC AAG AAG AAA GAA GTT TTC CCA TTT CCA GAA GTT AGC CAA GAT GAA 189

L N E I N Q F L G P V E K F F T E E V D 83
CTT AAT GAA ATC AAT CAG TTC TTG GGA CCC GTG GAA AAA TTC TTC ACT GAA GAG GTG GAC 249

S R K I D Q E G K I P D E T L E K L K S 103
TCC CGA AAA ATT GAC CAG GAA GGG AAA ATC CCA GAT GAA ACT TTG GAG AAA TTG AAG AGC 309

L G L F G L Q V P E E Y G G L G F S N T 123
CTA GGG CTT TTT GGG CTG CAA GTC CCA GAA GAA TAT GGT GGC CTG GGC TTC TCC AAC ACC 369

M Y S R L G E I I S M D G S I T V T L A 143
ATG TAC TCA AGA CTA GGG GAG ATC ATC AGC ATG GAT GGG TCC ATC ACT GTG ACC CTG GCA 429

A H Q A I G L K G I I L A G T E E Q K A 163
GCG CAC CAG GCT ATT GGC CTC AAG GGG ATC ATC TTG GCT GGC ACT GAG GAG CAG AAA GCC 489

K Y L P K L A S G E H I A A F C L T E P 183
AAA TAC TTG CCT AAA CTG GCG TCC GGG GAG CAC ATT GCA GCC TTC TGC CTC ACG GAG CCA 549

A S G S D A A S I R S R A T L S E D K K 203
GCC AGT GGG AGC GAT GCA GCC TCA ATC CCG AGC AGA GCC ACA CTA AGT GAA GAC AAG AAG 609

H Y I L N G S K V W I T N G G L A N I F 223
CAC TAC ATC CTC AAT GGC TCC AAG GTC TGG ATT ACT AAT GGA GGA CTG GCC AAT ATT TTT 669

T V F A K T E V V D S D G S V K D K I T 243
ACT GTG TTT GCA AAG ACT GAG GTC GTT GAT TCT GAT GGA TCA GTG AAA GAC AAA ATC ACA 729

A F I V E R D F G G V T N G K P E D K L 263
GCA TTC ATA GTA GAA AGA GAC TTT GGT GGA GTC ACT AAT GGG AAA CCC GAA GAT AAA TTA 789

G I R G S N T C E V H F E N T K I P V E 283
GGC ATT CGG GGC TCC AAC ACT TGT GAA GTC CAT TTT GAA AAC ACC AAG ATA CCT GTG GAA 849

N I L G E V G D G F K V A M N I L N S G 303
AAC ATC CTT GGA GAG GTC GGA GAT GGG TTT AAG GTG GCC ATG AAC ATC CTC AAC AGC GGC 909

R F S M G S V V A G L L K R L I E M T A 323
CGG TTC AGC ATG GGC AGC GTC GTG GCT GGG CTG CTC AAG AGA TTG ATT GAA ATG ACT GCT 969

E Y A C T R K Q F N K R L S E F G L I Q 343
GAG TAC GCC TGC ACA AGG AAA CAG TTT AAC AAG AGG CTC AGT GAA TTT GGA TTG ATT CAG 1029

E K F A L M A Q K A Y V M E S M T Y L T 363
GAG AAA TTT GCA CTG ATG GCT CAG AAG GCT TAC GTC ATG GAG AGT ATG ACC TAC CTC ACA 1089

A G M L D Q P G F P D C S I E A A M V K 383
GCA GGG ATG CTG GAC CAA CCT GGC TTT CCC GAC TGC TCC ATC GAG GCA GCC ATG GTG AAG 1149

Fig. 1A

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203020-92254660

V F S S E A A W Q C V S E A L Q I L G G 403
 GTG TTC AGC TCC GAG GCC GCC TGG CAG TGT GTG AGT GAG GCG CTG CAG ATC CTC GGG GGC 1209
 L G Y T R D Y P Y E R I L R D T R I L L 423
 TTG GGC TAC ACA AGG GAC TAT CCG TAC GAG CGC ATA CTG CGT GAC ACC CGC ATC CTC CTC 1269
 I F E G T N E I L R M Y I A L T G L Q H 443
 ATC TTC GAG GGA ACC AAT GAG ATT CTC CGG ATG TAC ATC GCC CTG ACG GGT CTG CAG CAT 1329
 A G R I L T T R I H E L K Q A K V S T V 463
 GCC GGC CGC ATC CTG ACT ACC AGG ATC CAT GAG CTT AAA CAG GCC AAA GTG AGC ACA GTC 1389
 M D T V G R R L R D S L G R T V D L G L 483
 ATG GAT ACC GTT GGC CGG AGG CTT CGG GAC TCC CTG GGC CGA ACT GTG GAC CTG GGG CTG 1449
 T G N H G V V H P S L A D S A N K F E E 503
 ACA GGC AAC CAT GGA GTT GTG CAC CCC AGT CTT GCG GAC AGT GCC AAC AAG TTT GAG GAG 1509
 N T Y C F G R T V E T L L L R F G K T I 523
 AAC ACC TAC TGC TTC GGC CGG ACC GTG GAG ACA CTG CTG CTC CGC TTT GGC AAG ACC ATC 1569
 M E E Q L V L K R V A N I L I N L Y G M 543
 ATG GAG GAG CAG CTG GTA CTG AAG CGG GTG GCC AAC ATC CTC ATC AAC CTG TAT GGC ATG 1629
 T A V L S R A S R S I R I G L R N H D H 563
 ACG GCC GTG CTG TCG CGG GCC AGC CGC TCC ATC CGC ATT GGG CTC CGC AAC CAC GAC CAC 1689
 E V L L A N T F C V E A Y L Q N L F S L 583
 GAG GTT CTC TTG GCC AAC ACC TTC TGC GTG GAA GCT TAC TTG CAG AAT CTC TTC AGC CTC 1749
 S Q L D K Y A P E N L D E Q I K K V S Q 603
 TCT CAG CTG GAC AAG TAT GCT CCA GAA AAC CTA GAT GAG CAG ATT AAG AAA GTG TCC CAG 1809
 Q I L E K R A Y I C A H P L D R T C * 622
 CAG ATC CTT GAG AAG CGA GCC TAT ATC TGT GCC CAC CCT CTG GAC AGG ACA TGC TGA 1866
 GGCAGGGGACAGTGTCCCTGCTACCGCCCGCCCTACCCATGGCCCGTGTGCTGGATGACTGTTACTCTTTTTTTCAGAA
 GGTGTTGGGATTATCACAGGTTAAGCCTTTTGTTCCTCGTGCACCTGAAGGGTGTGCGCTGGCCTGGGAGAGCCTC
 TTCCAGGTTTTGACCTGCAGGCAGTGTCTCTAACAGGACCATCACAGCTTCTGAACTGAGCCGGAGAGAGAGAATGGA
 ATTGCTGACCCCTGGAAGTGGCGGGTATTCTGGTCATTGAGGAGACACCATAGTGGAACTGGGGCTTATGCTGCTGCC
 TCCAGGGTGTGAGGTGGGTGGGACCTGTGTGAGGTGTGGATAGCCATTTCTGCTCAACCACACATTCTCTAAGAAACA
 GCTTGAAAGCTCTGTCTGGGTCAATTCAATTAACTAGAAGCAGAGGCACCTTAAACATGTACCAGGAACCATTTAACA
 AGAATATAAAATGTCACAATCTGTGTACTGTAAAAA

Fig. 1B

Protein Family / Domain Matches, HMMer version 2

Searching for complete domains in PFAM

hmmfam - search a single seq against HMM database

HMMER 2.1.1 (Dec 1998)

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HMM file: /prod/ddm/seqanal/PFAM/pfam6.4/Pfam
 Sequence file: /prod/ddm/wspace/orfanal/oa-script.26629.seq

Query: 62112

Scores for sequence family classification (score includes all domains):

Model	Description	Score	E-value	N
Acyl-CoA_dh_M	Acyl-CoA dehydrogenase, middle domain	153.0	3.5e-42	1
Acyl-CoA_dh	Acyl-CoA dehydrogenase, C-terminal dom	152.1	9.6e-42	1
Acyl-CoA_dh_N	Acyl-CoA dehydrogenase, N-terminal dom	73.7	4.2e-19	1
Polysac_deacet	Polysaccharide deacetylase	-43.7	1.8	1

Parsed for domains:

Model	Domain	seq-f	seq-t	hmm-f	hmm-t	score	E-value
Acyl-CoA_dh_N	1/1	85	177	29	132	73.7	4.2e-19
Acyl-CoA_dh_M	1/1	179	286	1	106	153.0	3.5e-42
Acyl-CoA_dh	1/1	290	441	1	156	152.1	9.6e-42
Polysac_deacet	1/1	432	580	1	150	-43.7	1.8

Alignments of top-scoring domains:

Acyl-CoA_dh_N: domain 1 of 1, from 85 to 177: score 73.7, E = 4.2e-19

```

*->RRvDksgefPalrelikaLgqlGllginvPEeyGGaGad.ylaRFm
      R++D++g+ P  e +++L lGl+g+ vPEeyGG+G +++ ++
62112   85   RKIDQEGKIP--DETLEKLKSLGLFGLQVPEEYGGGLGFsntMYS--- 126

      LHAQVaalviEElarvcAstgvilsvhssLgqnpilkfGseEQKkkyLpq
      + E+   ++s v+l++h ++g+ +i+ +G+eEQK+kyLp+
62112  127 -----RLGEIISMDGSITVTLAAHQAIGLKGIILAGTEEQKAKYLPK 168

      ltsGdliga<-*
      l+sG++i+a
62112  169 LASGEHIAA      177

```

Acyl-CoA_dh_M: domain 1 of 1, from 179 to 286: score 153.0, E = 3.5e-42

```

*->ALTEPgAGSDvgSlkTtAekkEGd..dyiLNGsKmWITNGgqAdwyi
      +lTEP +GSD++S++ +A+   d+++yiLNGsK+WITNGg A++++
62112  179   CLTEPASGSDAASIRSRATLS-EDkKHylNGSKVWITNGGLANIFT 224

      VLAvt...DpakkvpgkkgitaFlVekdtpGfsiGkKedKLGLRgSdTce
      V+A+T+  D +   + k itaF+Ve+d+ G++ Gk+edKLG+RgS+Tce
62112  225 VFAKTevvDSDG--SVKDKITAFIVERDFGGVINGKPEDKLGIRGSNTCE 272

      LiFEDvrvPesniL<-*
      + FE+ ++P +niL
62112  273 VHFENTKIPVENIL      286

```

Fig. 2A

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Acyl-CoA_dh: domain 1 of 1, from 290 to 441: score 152.1, E = 9.6e-42

```
*->GkGFkyamkeLdmeRlviAaqalGlaqgaldeAinYakqRkqFGkpl
G+Gfk+am+ L+ +R+ +++ Gl+ + ++ +++Ya RkqF k+l
62112 290 GDGFKVAMNINLSGRFSMGSVVAGLLKRLIEMTAETACTRKQFNKRL 336
```

```
adfQliQfKlAdMatkLEaarllvYraAwladr.GedAKEALptskeaam
+f liQ+k+A Ma k ++ +++Y +A d++G + ++s eaam
62112 337 SEFGLIQEKFALMAQKAYVMESMTYLTAGMLDQpGFP-----DCSIEAAM 381
```

```
AKlfaseaAmqvattAvQilGGvGYtkdyPverfyRDAkitqIYEGTSEI
+K f+seaA q +++A+QilGG GYt dyP eR +RD +i I EGT+EI
62112 382 VKVFSSEAAWQCVSEALQILGGLGYTRDYPYERILRDTRILLIFEGINETI 431
```

```
qrlvIaRall<-*
r Ia + l
62112 432 LRMYIALTGL 441
```

Polysac_deacet: domain 1 of 1, from 432 to 580: score -43.7, E = 1.8

```
*->ddksvyLTFDDGPnAApayTprlLDvLkhhkvkATFFviGsnvkdnp
+++++LT + ++ + T+r+ + Lk+ kv + G++ +d
62112 432 LRMYIALTGLQHAG--RILITRI-HELKQAKVSTVMDTVGRRLRD-- 473
```

```
dlarrivkeGHeigNhtwshpdl.....tl
+ r v+ G gNH+ HP l+++ ++ ++++ +++ ++ + +
62112 474 -SLGRTVDLG-LTGNHGVVHPSLAdsankfeentycfgrtvettlllrfgK 521
```

```
taeqirdeiartneaiiqatggatptlfrpPYGewsetvlsasaklGlaa
t +++ + r+++++i+++g t++l R+ s+s ++Gl+
62112 522 TIMEEQVLVKRVANILINLYG-MTAVLSRA-----SRSIRIGLRN 560
```

```
vlWdvDprDwsragadaivdavlqaa<-*
+ D v ++ v a+lq+
62112 561 H-----DHEVLLANIFCVEAYLQNL 580
```

Fig. 2B

09045326-020802

Protein Family / Domain Matches, HMMer version 2

Searching for complete domains in PFAM

hmmfam - search a single seq against HMM database

HMMER 2.1.1 (Dec 1998)

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HMM file: /prod/ddm/seqanal/PFAM/pfam5.4/Pfam
Sequence file: /prod/ddm/wspace/orfanal/oa-script.17193.seq

Query: 62112

Scores for sequence family classification (score includes all domains):

Model	Description	Score	E-value	N
Acyl-CoA_dh	Acyl-CoA dehydrogenase	399.8	1.8e-116	1
Polysac_deacet	Polysaccharide deacetylase	-43.7	1	1

Parsed for domains:

Model	Domain	seq-f	seq-t	hmm-f	hmm-t	score	E-value
Acyl-CoA_dh	1/1	85	438 ..	29	394 .]	399.8	1.8e-116
Polysac_deacet	1/1	432	580 ..	1	150 []	-43.7	1

Alignments of top-scoring domains:

Acyl-CoA_dh: domain 1 of 1, from 85 to 438: score 399.8, E = 1.8e-116

*->RRvDksgefPlrelikaLgklGllginvPEeyGGaGad..ylaRFmL

R++D++g+ P e +++L lGl+g+ vPEeyGG+G +++ ++

62112 85 RKIDQEGKIP-DETLKSLGLFLGLQVPEEYGGGLGFSntMYS----- 126

HAQVaalviEElarvcAstgvllsvhssLggnpilrfGseEQkdkyLpql

+ E+ ++s v+l++h ++g+ i+ +G+eEQk+kyLp+l

62112 127 -----RLGEIISMDGSITVTLAHQAIQLKGIILAGTEEQKAKYLPKL 169

Fig. 2C

00945326-020806

tsGdligafALTEPgAGSDvgSikTtAekkEGd..dyiLNGsKmWITNGg
 +sG++i+af+lTEP +GSD++Si+ +A+ d+++yiLNGsK+WITNGg
 62112 170 ASGEHIAAFCLTEPASGSDAASIRSRATLS-EDkkHYILNGSKVWITNGG 218

qAdwyiVlAvT...DpakkvpgkkgitaFlVekdtpGfsiGkKedKLGIR
 A++++V+A+T+ D + + k itaF+Ve+d+ G++ Gk+edKLG+R
 62112 219 LANIFTVFakTevvDSDG--SVKDKITAFIVERDFGGVINGKPEDKLGIR 266

gSdTcELiFEDvrvPesnilGeEGeGFkyaMktLdmerLgiAaqalGiaq
 gS_TcE+ FE+ ++P +nilGe G+GFk+aM+ L+ +R+ +++ G++
 62112 267 GSNICEVHFENTKIPVENILGEVGDGFKVAMNINSGRFSMGSVVAGLLK 316

galdeAinYakqRkqFGkplaefQliQfklAdMatkLEaarllvYraAwl
 + ++ +++YA RkqF k+l ef liQ+k+A MA k ++ +++Y +A
 62112 317 RLIENTAEYACTRKQFNKRLSEFGLIQEKFALMAQKAYVMESMTYLTAGM 366

adr.GedAKEALptskeAAMAKlfaseiAmkvatdAvQilGGvGYtkdyP
 d++G + ++s eAM+K f+se+A + +++A+QilGG GYT dyP
 62112 367 LDQpGFP-----DCSIEAAMVKVFSSEAOWCVSEALQILGGLGYTRDYP 411

verfyRDAkitqIYEGTsEIQrlvIaR<-*
 eR +RD +i I EGT+EI r Ia
 62112 412 YERILRDTRILLIFEGTINEILRMYIAL 438

Polysac_deacet: domain 1 of 1, from 432 to 580: score -43.7, E = 1
 *->ddksvyLTFDDGPnAapayTprllDvLkKhkvkATFFviGsnvkdnp
 +++++LT + ++ + T+r+ + Lk+ kv + G++ +d
 62112 432 LRMYIALTGLQHAG--RILTTRI-HELKQAKVSTVMDTVGRRLRD-- 473

dlarriVkeGHeigNhtwshpdl.....tl
 + r v+ G gNH+ HP l+++ ++ +++ ++ + +
 62112 474 -SLGRTVDLG-LTGNHGVVHPSLAdsankfeentycfgrtvettlllrfgK 521

taeqirdeiartneaiiqatggatptlfrpPYGewsetvlsasaklGlt
 t +++ + r+++++i+++g t++l R+ s+s ++Gl+
 62112 522 TIMEEQVLKRVANILINLYG-MTAVLSRA-----SRSIRIGLRN 560

vlWdvDprDWsvragadaivdavlqaa<-*
 + D v ++ v a+lq+
 62112 561 H-----DHEVLLANTFCVEAYLQNL 580

Fig. 2D

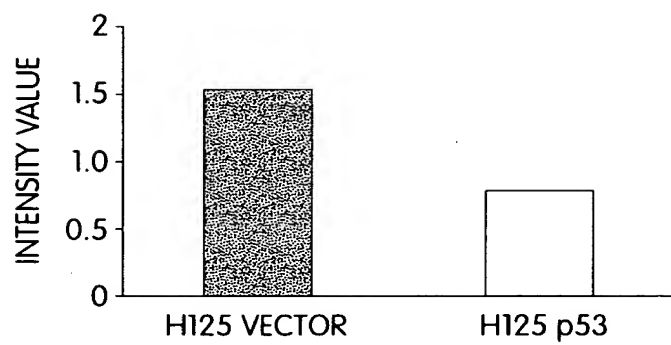


Fig. 3A

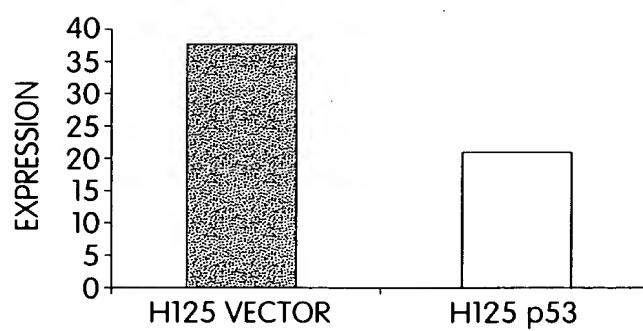


Fig. 3B

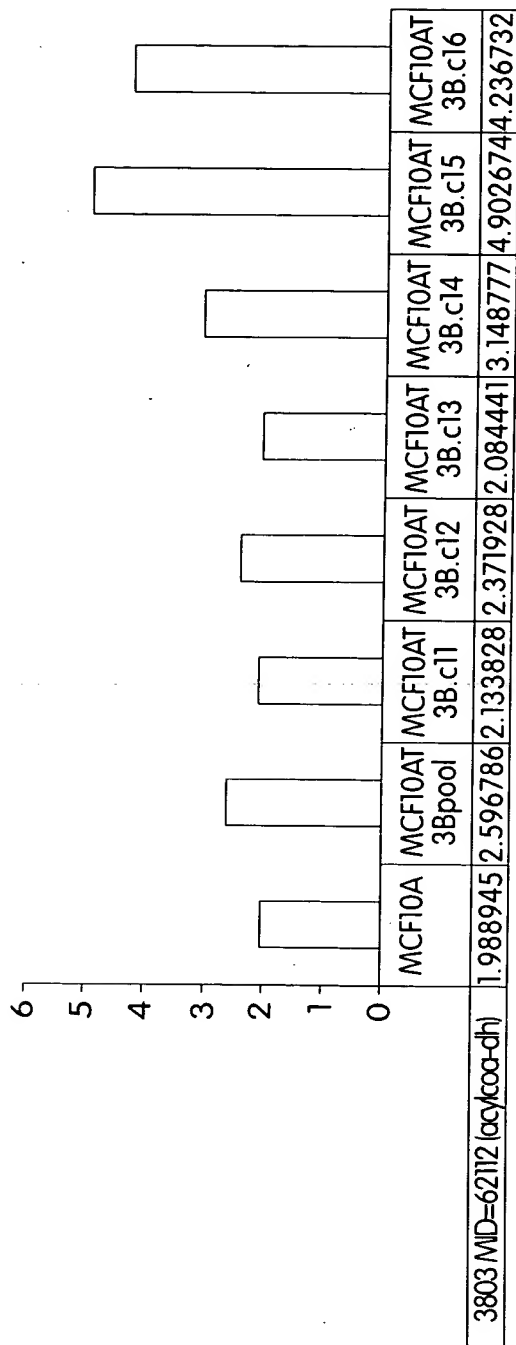


Fig. 4

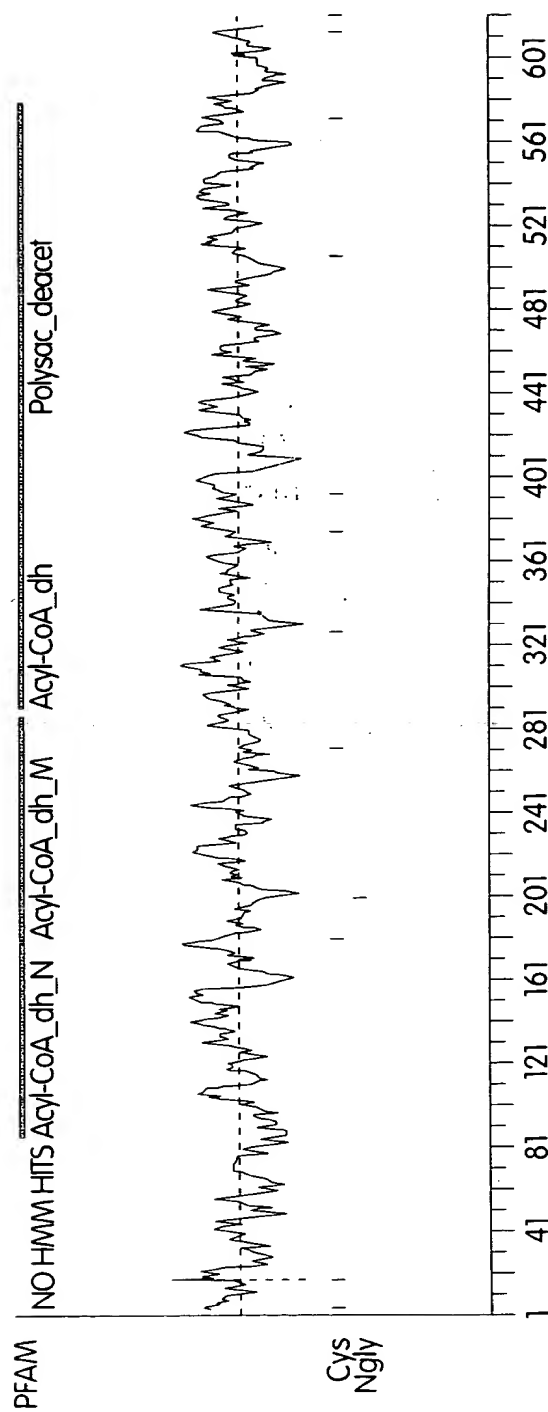


Fig. 5